

543,080

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
12 August 2004 (12.08.2004)

PCT

(10) International Publication Number  
**WO 2004/068002 A1**

(51) International Patent Classification<sup>7</sup>: **F16H 48/30**

(21) International Application Number:  
PCT/IT2003/000044

(22) International Filing Date: 31 January 2003 (31.01.2003)

(25) Filing Language: Italian

(26) Publication Language: English

(71) Applicant (for all designated States except US): **MERITOR HEAVY VEHICLE SYSTEMS CAMERI S.P.A.** [IT/IT]; Strada Provinciale Cameri-Bellinzago, KM.5, I-28062, Cameri (IT).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **PONTANARI, Marco** [IT/IT]; Via Veneto N° 16, I-28050 Pombia (NO), Italy (IT).

(74) Agents: **ROBBA, Pierpaolo et al.**; Interpatent S.r.l., Via Caboto, 35, I-10129 Torino (IT).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

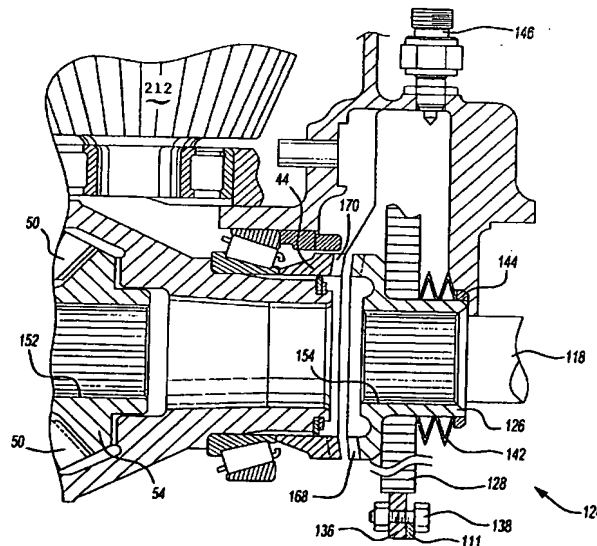
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- with amended claims

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **ELECTRONIC DIFFERENTIAL LOCK ASSEMBLY**



(57) Abstract: An electronic differential lock assembly includes a shift collar that is movable in response to an electronic signal from an unlocked position where axle shaft speed differentiation under predetermined conditions is permitted to a locked position where a pair of axle shafts are fixed for rotation together. Speed differentiation is provided by a differential that includes a differential gear assembly supported within a differential case. A coil surrounds the shift collar and is selectively energized to move the shift collar from the unlocked position to the locked position. The shift collar is splined to one of the axle shafts and is selectively splined to the differential case to lock the axle shafts together. The electronic differential lock assembly includes a return spring that automatically disengages the shift collar from the differential case once the coil is no longer energized.

WO 2004/068002 A1